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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SCUDERI, PHILIP S	
ART UNIT	**PAPER NUMBER**
2153	

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/039,432	HOUSTON ET AL.	
	Examiner	Art Unit	
	Philip S. Scuderi	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☒ Claim(s) *2, 3, 5, and, 12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 2 is objected to because of the following informalities: "both of said first and second protocol set" on line 3. Examiner suggests "both of said first and second protocol sets". Appropriate correction is required.

2. Claim 3 is objected to because the claim repeats the limitation "to derive at least some of the entries in said second database from respective entries in said first database" in lines 4-5 and 5-6. Examiner suggests removing one occurrence of the limitation.

3. Claim 5 is objected to because the claim repeats the limitation "to associate said indentifying information which the, or each, entry in the first database" in lines 3-4 and 4-5. Examiner suggests removing one occurrence of the limitation.

4. Claim 12 is objected to because of the following informalities: "respective dual protocol field" on line 3. Examiner suggests "respective dual protocol fields". Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 15 recites the limitation ""the "protocols supported" field"" in line 3. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 16 recites the limitation ""the "encapsulation capability" field"" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-10, 13-14, and 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Callon et al. (US 5,251,205, hereinafter "Callon").

11. With respect to claim 1, Callon discloses an apparatus (fig. 3 #164) for routing data packets in a network comprising a plurality of nodes (see fig. 3) each arranged to support one or both of a first and second set of one or more protocols (col. 17 lines 59-68), the apparatus being included, in use, in a first network node (fig. 3 #164) which is associated with at least one entry relating to at least one respective path from said first network node to a respective destination node in the network (col. 22 line 66 – col. 23 line 1), wherein the apparatus is arranged to determine (The routers in the network of fig. 3, including router 164, are adapted to use the modified Dijkstra's algorithm so that they can route OSI and IP packets as discussed in the examples of col. 22 line 64 – col 23 line 12.), when creating an entry in respect of at least one path to a destination node (fig. 3 #156), if said destination node supports both of said first and

second protocol sets (fig. 5B #220, 224), and being further arranged, upon so determining, to associate information with said entry identifying said destination node as a dual router (As shown in fig. 5B #221 and 225, setting the OSI and IP flags identifies a node as a dual router.), and wherein the apparatus is further arranged, when creating subsequent entries in respect of paths to other destination nodes which paths include said destination node, to associate said identifying information with said subsequent entries (col. 24 lines 41-44, Fig. 4B shows the resulting information associated with subsequent entries.).

12. With respect to claim 2, Callon discloses the apparatus for routing data packets applied to claim 1. Callon further discloses that the apparatus is arranged to determine, when creating an entry in respect of at least one path to a destination node, the encapsulation capability of said destination node which supports both of said first and second protocol sets (col. 22 lines 51-58, fig. 5A #200).

13. With respect to claim 3, Callon discloses the apparatus for routing data packets applied to claim 1. Until Annex A Callon is silent with respect to the specific data stores used to store the data structures discussed in the general description, however in Annex A Callon further discloses the modified Dijkstra's algorithm in greater detail. Callon further discloses a first database for holding entries in respect to tentative paths to destination nodes (col. 52 lines 56-61), a second database for holding entries in respect of shortest paths to destination nodes (col. 52 lines 21-25), and wherein at least some of the entries in said second database are derived from respective entries in said first database (col. 53 lines 57-67). It is concluded that permanent nodes discussed in the general description section are stored in a PATHS database and that temporary nodes are stored in a TENT database, as disclosed in Annex A.

14. With respect to claim 4, Callon discloses the apparatus for routing data packets applied to claim 3. Callon further discloses determining if a destination node supports both of said first and second protocols when creating an entry in said second database (As discussed in col. 22 lines 51-58, single-protocol routers only have the fields specified by fig. 5A #190. Therefore the algorithm must determine if a destination node supports both of said first and second protocols when creating an entry in said second database so that the algorithm can determine whether or not to store the fields specified by fig. 5A #200 when making a node permanent (storing in PATHS).), and to associate said identifying information with the, or each, entry in the first database which is subsequently derived from said entry in the second database (col. 24 lines 41-46).

15. With respect to claim 5, Callon discloses the apparatus for routing data packets applied to claim 3. Callon further discloses determining the encapsulation capability of said destination node in respect of said first and second protocol sets when creating an entry in said second database (As discussed in col. 22 lines 51-58, single-protocol routers only have the fields specified by fig. 5A #190. Therefore the algorithm must determine if a destination node supports both of said first and second protocols when creating an entry in said second database so that the algorithm can determine whether or not to store the fields specified by fig. 5A #200 when making a node permanent (storing in PATHS)), and associating said identifying information with the, or each, entry in the first database which is subsequently derived from said entry in the second database (col. 24 lines 41-44, Fig. 4B shows the resulting information associated with subsequent entries.).

16. With respect to claim 6, Callon discloses the apparatus for routing data packets applied to claim 4. Callon further discloses arranging said associated identifying information with one or more subsequent entries in said second database derived from the, or each of said first database entries (col. 24 lines 41-44, fig. 4B, The identifying information is stored in a permanent node (stored in PATHS) and associated with new tentative nodes (stored in TENT) which are derived from the first (permanent) database entries).

17. With respect to claim 7, Callon discloses the apparatus for routing data packets applied to claim 3. Callon further discloses that in respect of an entry added to said second database, arranging to create selectively a respective entry in said first database in respect of at least one path to the, or each network node that is adjacent the destination node to which said added second database entry relates (col. 24 lines 41-44, fig. 4B, A permanent node is stored in PATHS and associated with new tentative nodes (stored in TENT) which are derived from the first (permanent) database entries).

18. With respect to claim 8, Callon discloses the apparatus for routing data packets applied to claim 3. Callon further discloses that each entry includes an indicator of the cost of sending a data packet from the first node to the destination node of the entry (fig. 5A #198, col. 22 lines 33-42), the apparatus being arranged to create an entry in said second database in respect of the entry in the first database having the lowest cost indicator (col. 53 lines 57-67).

19. With respect to claim 9, Callon discloses the apparatus for routing data packets applied to claim 1. Callon further discloses including said identifying information in each relevant database entry (col. 22 lines 51-58).

20. With respect to claim 10, Callon discloses the apparatus for routing data packets applied to claim 9. Callon further discloses that each database entry relating to at least one path to a destination node includes, in respect of the, or each path, a respective dual protocol field for carrying said identifying information, wherein the, or each, dual protocol field may be set to identify a dual router in the respective path (fig. 5A #200, col. 22 lines 51-58).

21. With respect to claim 13, Callon discloses the apparatus for routing data packets applied to claim 10. Callon further discloses that each of said entries further includes at least one adjacent node field for identifying which adjacent node of said first node is the first node in said path to the destination node (fig. 5A #194, col. 22 lines 7-26), and wherein the adjacent node field is associated with a respective dual protocol field (fig. 5A #200).

22. With respect to claim 14, Callon discloses the apparatus for routing data packets applied to claim 1. Callon further discloses that the network nodes are arranged to implement one or more Link State Protocols (col. 40 lines 16-24) and wherein said first network node includes a third database for storing routing data packets that are distributed by each other network node (col. 54 lines 13-19).

23. With respect to claim 17, Callon discloses the apparatus for routing data packets applied to claim 1. Callon further discloses that said first and second protocol sets each comprise an OSI protocol set or an IP protocol set (fig. 5B #220, 224).

24. With respect to claim 18, Callon discloses the apparatus for routing data packets applied to claim 1. Callon further discloses a network node comprising an apparatus as claimed in claim 1 (fig. 3 #164 as explained in the rejection of claim 1 routers in the network of fig. 3, including router 164, are adapted to use the modified Dijkstra's algorithm).

25. With respect to claim 19, Callon discloses the apparatus for routing data packets applied to claim 1. Callon further discloses a heterogeneous network comprising one or more network nodes comprising an apparatus as claimed in claim 1 (fig. 3, col. 17 lines 59-68).

26. With respect to claim 20, Callon discloses an apparatus (fig. 3 #164) for routing data in a network comprising a plurality of nodes (see fig. 3) each arranged to support one or both of a first and second set of one or more protocols (col. 17 lines 59-68), the apparatus being included, in use, in a first network node which includes at least one database (The routers in the network of fig. 3, including router 164, are adapted to use the modified Dijkstra's algorithm so that they can route OSI and IP packets as discussed in the examples of col. 22 line 64 – col. 23 line 12. Annex A discloses the modified Dijkstra's algorithm in greater detail including at least one database (col. 52 lines 21-25).), the apparatus being arranged to create entries in said at least one database (col. 52 lines 21-25), each entry relating to at least one respective path from said first network node to a respective destination node in the network (col. 52 lines 21-25), a method of identifying dual routers, the method comprising: determining, when creating an entry in respect of at least one path to a destination node (fig. 3 #156), if said destination node supports both of said first and second protocol sets (fig. 5B #220, 224); associating, upon so determining, information with said entry identifying said destination node as a dual router (As shown in fig. 5B #221, and 225, setting the OSI and IP flags identifies a node as a dual router.), and, when creating subsequent entries in respect of paths to other destination nodes which paths include said destination node, associating said identifying information with said subsequent entries (col. 24 lines 41-44, Fig. 4B shows the resulting information associated with subsequent entries.).

27. With respect to claim 21, Callon discloses the apparatus for routing data packets applied to claim 20. Callon further discloses a computer program product comprising computer useable instructions for causing a computer to implement the method claimed in claim 20 (Routers in the network of fig. 3 must inherently comprise a computer program product comprising computer useable instructions for causing a computer to implement the method claimed in claim 20 in order to use the modified Dijkstra's algorithm so that they can route OSI and IP packets as discussed in the examples of col. 22 line 64 – col. 23 line 12).

28. With respect to claim 22, Callon discloses an apparatus (fig. 3 #164) for routing data in a network comprising a plurality of nodes (see fig. 3) each arranged to support one or both of a first and second set of one or more protocols (col. 17 lines 59-68), the apparatus being included, in use, in a first network node which includes at least one database (The routers in the network of fig. 3, including router 164, are adapted to use the modified Dijkstra's algorithm so that they can route OSI and IP packets as discussed in the examples of col. 22 line 64 – col. 23 line 12. Annex A discloses the modified Dijkstra's algorithm in greater detail including at least one database (col. 52 lines 21-25).), the apparatus being arranged to create entries in said at least one database (col. 52 lines 21-25), each entry relating to at least one respective path from said first network node to a respective destination node in the network (col. 52 lines 21-25), a method of identifying dual routers, the method comprising: determining, when creating an entry in respect of at least one path to a destination node (fig. 3 #156), the encapsulation capability of said destination node, if said destination node supports both of said first and second protocol sets (fig. 5B #220, 224, Determining if the destination node supports both of said first and second protocol sets is determining the encapsulation capability of the destination node. The IP and OSI

protocols perform encapsulation of data.); associating, upon so determining, information with said entry identifying said destination node as a dual router having said encapsulation capability (As shown in fig. 5B #221, and 225, setting the OSI and IP flags identifies a node as a dual router, meaning it has the capability to encapsulate data using the OSI or IP protocol.), and, when creating subsequent entries in respect of paths to other destination nodes which paths include said destination node, associating said identifying information with said subsequent entries (col. 24 lines 41-44, Fig. 4B shows the resulting information associated with subsequent entries.).

Claim Rejections - 35 USC § 103

29. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

30. Claims 11 and 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Callon.

31. With respect to claim 11, Callon discloses the apparatus for routing data packets applied to claim 10. Callon further discloses that a dual protocol router may not always need to encapsulate a user data packet (col. 23 lines 37-41). It would therefore be obvious to one of ordinary skill in the art to determine if the destination node supports both of said first and second protocol sets only if at least one of the, or each, dual protocol fields is set to indicate that no known dual router exists in the respective path. The motivation for doing so would have been so that the router doesn't perform unnecessary calculations that could degrade performance.

32. With respect to claim 12, Callon discloses the apparatus for routing data packets applied to claim 11. Callon further discloses whereupon determining that said destination node supports both of said first and second protocol sets, the apparatus is arranged to set the respective dual protocol fields to identify said destination node (fig. 5B #220-226).

33. Claim 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callon in view of RFC 1195 (12/1990, URL: "http://www.faqs.org/ftp/rfc/rfc1195.pdf").

34. With respect to claims 15 and 16, Callon discloses the apparatus for routing data packets applied to claim 14. Callon does not expressly disclose that at least the network nodes that support both of said first and second protocols sets are arranged to support Integrated IS-IS Link State Protocol. Nonetheless, a network comprising nodes that support both of a first and second protocol set supporting the Integrated IS-IS Link State Protocol was well known, as evidenced by RFC 1195. In a similar art, RFC 1195 discloses network nodes that support both of a first and second protocol set supporting the Integrated IS-IS Link State Protocol (section 1.4 "The integrated IS-IS proposal specifically allows for three types of routing domains" ... "Dual" ... "In a dual area within a dual routing domain only dual routers may be used. Both IP and OSI traffic can be routed within a dual area."). Given the teachings of RFC 1195 it would have been obvious to one of ordinary skill in the art to arrange at least the network nodes that support both of said first and second protocols sets to support Integrated IS-IS Link State Protocol. The motivation for doing so would have been because integrated IS-IS requires only one routing protocol, it uses fewer resources (RFC 1195 section 1.5 "Another advantage of the integrated IS-IS is that, since it requires only one routing protocol, it uses fewer resources."). Callon further

discloses that the apparatus is arranged to examine the "protocols supported" field of the respective routing data packets (col. 39 line 67 – col. 40 line 6). A protocol is a method of encapsulating data, so the "protocols supported" field is an "encapsulation capability" field.

Conclusion

35. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Callon (US 5,430,727); Perlman et al. (US 5,557,745); Grove et al. (US 6,820,133); and Nguyen et al. (US 2002/0016926).

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip S. Scuderi whose telephone number is (571) 272-5865. The examiner can normally be reached on Monday-Friday 8am-5pm.

37. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton B. Burgess can be reached on (703) 305-4792. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

38. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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